

Leiomyoma of the Breast

HOWARD L. KAUFMAN, MD, AND ERWIN F. HIRSCH, MD

From the Department of Surgery, Boston City Hospital and Boston University School of Medicine, Boston, Massachusetts

Leiomyoma is the most uncommon benign neoplasm of the breast. We report a case of a middle-aged woman with a palpable breast mass who underwent excisional biopsy. Pathologic examination revealed a leiomyoma. The clinical characteristics, pathologic findings, and proper management of this lesion are discussed. The tumor is thought to arise from the smooth muscle of the endothelium and can be managed similarly to leiomyomas occurring elsewhere. The possible effects of tamoxifen on uterine leiomyomas may be of theoretical concern with breast leiomyomas. The recognition of this entity and an understanding of the management of this rare lesion are necessary by all surgeons who perform breast surgery. © 1996 Wiley-Liss, Inc.

KEY WORDS: benign tumors, breast, leiomyomas

INTRODUCTION

Benign breast tumors may arise from any of the cellular components found in breast tissue or the overlying skin and subcutaneous tissue. Fibrocystic disease and fibroadenoma are the most common diagnoses made. In addition, tumors may arise from apocrine sweat glands, fibroblasts, adipocytes, endothelial cells, and rarely from smooth muscle cells. Leiomyomas of the breast are among the most uncommon benign tumors encountered and have been reported to behave as leiomyomas in other tissues. Recent reports of tamoxifen-related complications in uterine leiomyomas may have implications for these tumors when they occur in the breast [1]. We report a case of leiomyoma of the breast in a patient presenting to a general surgical clinic. The history, treatment, and pathology are reviewed.

CASE REPORT

A 48-year-old Hispanic female presented with a slowly enlarging right breast mass on self-examination over the past 12 months. She denied pain in the breast, nipple discharge, deformity of the overlying skin, anorexia, or weight loss. There was no family history of breast cancer. Physical examination revealed a 1 cm palpable mass, easily mobile, and nontender, just below the superior aspect of the areola of the right breast. No nipple discharge was appreciated. The left breast and both axillae were

normal on palpation. There was no cervical or supraclavicular adenopathy.

The patient had a mammogram performed which showed bilateral dense breasts with minimal fatty replacement. There was no evidence of a dominant mass, focal microcalcifications, architectural distortion, skin thickening, or nipple retraction. A preoperative chest roentgenogram showed a few calcified granulomata in the left lower lung field, but was otherwise normal. Informed consent was obtained for an excisional breast biopsy under local anesthesia.

After excisional biopsy, a frozen section examination revealed a leiomyoma with adequate surgical margins. The patient had an uneventful recovery. The final pathology was reviewed confirming the frozen section diagnosis (Figs. 1, 2).

The patient will be followed up yearly and no further intervention is planned.

DISCUSSION

Leiomyomas represent the rarest benign nonepithelial tumors of the breast. There have been three reported cases of breast leiomyoma from the European literature over

Accepted for publication September 12, 1995.

Address reprint requests to Erwin F. Hirsch, MD, Chairman, Department of Surgery, Boston City Hospital, 818 Harrison Avenue, Boston, MA 02118.

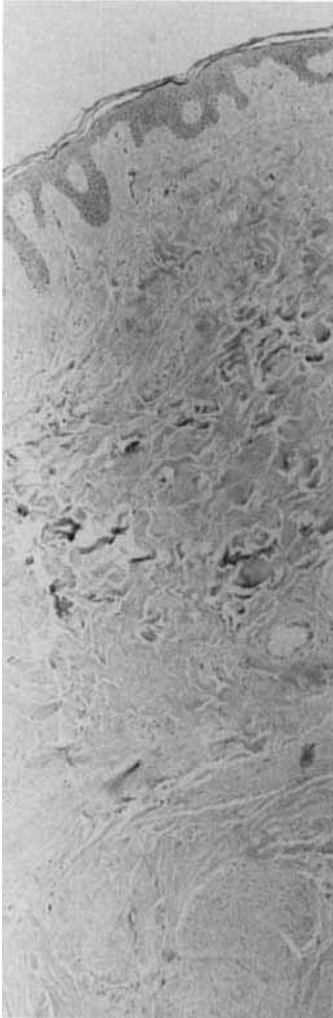


Fig. 1. Low power view of the excised breast leiomyoma. The tumor is poorly demarcated with haphazardly arranged interlacing smooth muscle fibers intermingled with varying amounts of collagen bundles. The tumor extends from the dermis into the underlying breast parenchyma and is contained within the margins of resection.

the last several years [2,3]. In addition, four cases of nipple leiomyoma, grouped as a subset of cutaneous leiomyomas, were recently reported from Great Britain [4]. Most leiomyomas, when they do occur, are found in the subareolar location, as in our patient. The tumor is thought to arise from smooth muscle cells surrounding capillaries within the breast and subcutaneous tissues. The frequent occurrence of these tumors near the nipple may be related to the abundance of smooth muscle cells around the nipple and areola.

The usual presentation of these tumors is as a painless breast lump noted by a patient on self-breast examination or by an examining physician. There is no correlation with epithelial tumors or carcinomas. A family history or genetic linkage has not been reported. The usual management of these lesions is complete excision. In rare cases relapse has been reported when total excision was not accomplished at the time of first operation [2]. Thus, it is critical to ascertain at the time of frozen section diagnosis that all margins are clear of residual tumor.

The distinction between leiomyoma and leiomyosarcoma is not always an easy one. Leiomyosarcomas are extremely rare sarcomas of the breast with less than a dozen reported cases in the literature [5]. The usual age range for this diagnosis is between 50 and 75 years and may have a slight male predominance [6]. Long-term cure is usually achieved by total or radical mastectomy, depending on the size of the tumor on presentation. A single patient has been reported with hepatic metastases 15 years after mastectomy, but this is unusual [7].

The common histologic features of leiomyomas are groups of interfacing bundles of spindle-shaped cells with blunt-ended nuclei and eosinophilic cytoplasm. A high mitotic index, the presence of hypercellularity and necrosis, and evidence of invasion raise the likelihood of leiomyosarcoma over a simple leiomyoma. The distinction has obvious clinical importance as it would dictate the extent of resection required for cure.

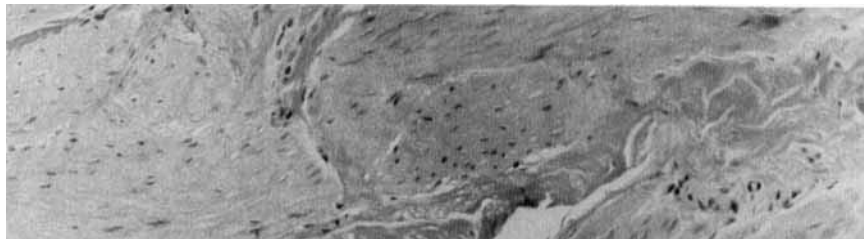


Fig. 2. High power view of breast leiomyoma reveals bundles of smooth muscle cells arranged in straight fibers with little or no waviness and thin, eel-like, centrally located nuclei, typical of leiomyomas elsewhere. There is no evidence of malignant degeneration.

Another potential area of interest is the effect of the antiestrogen agent, tamoxifen, on the growth of breast leiomyomas. Tamoxifen has been shown to result in the sudden, rapid increase in growth of uterine leiomyomas, which may necessitate hysterectomy [8]. The increased use of tamoxifen in recent years for postmenopausal women with breast cancer should alert the clinicians to a possible deleterious effect on a patient with a breast leiomyoma. Estrogen and other growth factors may be responsible for controlling the growth rate and differentiation of leiomyomas. The possibility of malignant degeneration in patient with leiomyomas receiving tamoxifen remains hypothetical, but has been questioned [9]. This possibility would again dictate excision of these lesions as soon as practical in any patient on tamoxifen.

In conclusion, leiomyomas of the breast represent extremely rare lesions that usually present as a painless mass noted on physical examination. The lesion needs to be distinguished from epithelial benign tumors, which may increase the risk of breast carcinoma, and from leiomyosarcomas, which require more extensive therapy. The procedure of choice is complete excision with clear margins to prevent a recurrence. The distinguishing features of sarcomatous change can usually be adequately identified on histopathologic examination. Fine-needle aspiration may hold some promise in making the diagnosis in patients unable or unwilling to undergo excisional biopsy.

The effect of the antiestrogen agent, tamoxifen, on the growth and differentiation of breast leiomyomas is unknown. The possible risk of rapid enlargement and malignant degeneration while on tamoxifen remains hypothetical but should be considered in patients prescribed this medication. The recognition of this benign tumor and understanding of proper management are required by all surgeons performing breast surgery.

REFERENCES

1. Dilts PV, Hopkins MP, Chang AE, Cody RL: Rapid growth of leiomyoma in a patient receiving tamoxifen. *Am J Obstet Gynecol* 166:167-168, 1992.
2. Boscaino A, Ferrara G, Orabona P, et al.: Smooth muscle tumors of the breast: clinicopathologic features of two cases. *Tumori* 80:241-245, 1994.
3. Pujol RM, Fernandez MT: A solitary papule on the nipple: Nodular leiomyoma of the nipple. *Arch Dermatol* 127:573-576, 1991.
4. Newman PL, Fletcher CD: Smooth muscle tumors of the external genitalia: Clinicopathologic analysis of a series. *Histopathology* 18:523-529, 1991.
5. Tavassoli FA: Mesenchymal lesions. In Tavassoli FA (ed): "Pathology of the Breast." New York: Elsevier, 1992, p 556-557.
6. Hernandez FJ: Leiomyosarcoma of male breast originating in the nipple. *Am J Surg Pathol* 3:299-304, 1978.
7. Pardo-Minden J, Garcia-Julian G, Eizaguirre AM, et al.: Leiomyosarcoma of the breast. *Am J Clin Pathol* 62:477-480, 1974.
8. Leo L, Lanza A, Re A, et al.: Leiomyomas in patients receiving tamoxifen. *Clin Exp Obstet Gynecol* 21:94-98, 1994.
9. Ugwumadu AH, Harding K: Uterine leiomyomata and endometrial proliferation in postmenopausal women treated with the anti-estrogen tamoxifen. *Eur J Obstet Gynecol Reprod Biol* 54:153-156, 1994.